Department of Ecology
Fish Consumption Technical Workshops
May 7, 2012 | Ellensburg, WA
May 8, 2012 | Tacoma, WA
May 15, 2012 |Spokane Valley, WA

Welcome, Introductions and Logistics – Pat Serie, EnviroIssues

Pat Serie thanked everyone for attending the workshop and gave an overview of the series and what is to come. Three workshops will be held on Fish Consumption Rates in Washington. The workshops are a continuation of the discussion started in December 2011, when the technical support document was published and the public was invited to start the dialog on fish consumption rates in Washington. Pat reviewed the meeting purpose:

The Department of Ecology's (Ecology) Toxics Cleanup Program staff will preview preliminary thinking on fish consumption rates as they relate to the Sediment Management Standards. The workshops will provide background information, updates on ongoing work, and Ecology's thinking on resolving various fish consumption related issues as they relate to the Sediment Management Standards. [Note: Updates to Human Health Criteria for Water Quality Standards are not expected to begin until 2013, and Water Quality Standards issues, including ongoing work on Implementation Tools, will be addressed in separate public workshops.]

This summer Ecology is planning to propose:

- Statewide default fish consumption rates to establish Sediment Management Standards with flexibility for: (1) site-specific adjustments based on habitat considerations and anadromous fish species, and (2) site-specific fish consumption rates when supported by current scientific information; and
- Sediment Management Standards Rule Language complemented by guidance to help support site-specific cleanup decisions.

The package for public review will include the draft rule, economic impact assessment, and revised technical support document.

Overview and Context – Martha Hankins, Department of Ecology

Martha Hankins, Department of Ecology, said the presentation will paint the overall picture, and then cover specific issues regarding fish consumption rates. The presentation will focus on Sediment Management Standards, but also briefly explain the process for Water Quality Standards. The workshops will explain where Ecology is with the technical support document, review the comments received in the earlier review period, and provide an update on analysis being conducted.

Martha reviewed the importance of fish for Washington State consumers as a dietary option and resource. She explained that because chemicals can accumulate in fish, consumption must be addressed when looking at regulatory standards. Fish consumption is a major exposure pathway for environmental chemicals, and in Washington there are two major sets of regulation: The Model Toxics Control Act

(MTCA) Cleanup Regulation (default fish consumption rate of 54 grams per day) and Water Quality Standards for Surface Waters (default fish consumption rate of 6.5 grams per day). Cleanup regulations need to be more reflective of actual fish and shellfish consumption in Washington.

Martha explained that work on the MTCA rule is on hold, and for now, Ecology's focus is on contaminated sediments. Fish consumption rates are important because they drive cleanup standards as well as pollution discharge limits. Oregon recently updated its fish consumption rate to 175 grams per day. Eating 8-ounces of fish every day equated to 225 grams per day.

Concentrations of chemicals can be reduced over time, and the long-term objectives of Ecology are to reduce background concentrations and protect human health from bioaccumulation using standards based on fish consumption rates. Ecology has separate but coordinated processes for Sediment Management Standards and Water Quality Standards. The relationship between water quality implementation tools and health-based criteria is still an active dialog.

There over 150 cleanup sites in Washington with contaminated sediments. If Ecology wants to be effective about removing contaminants, some things need to be done immediately. There are reactive and preventative measures; Ecology wants to be preventative.

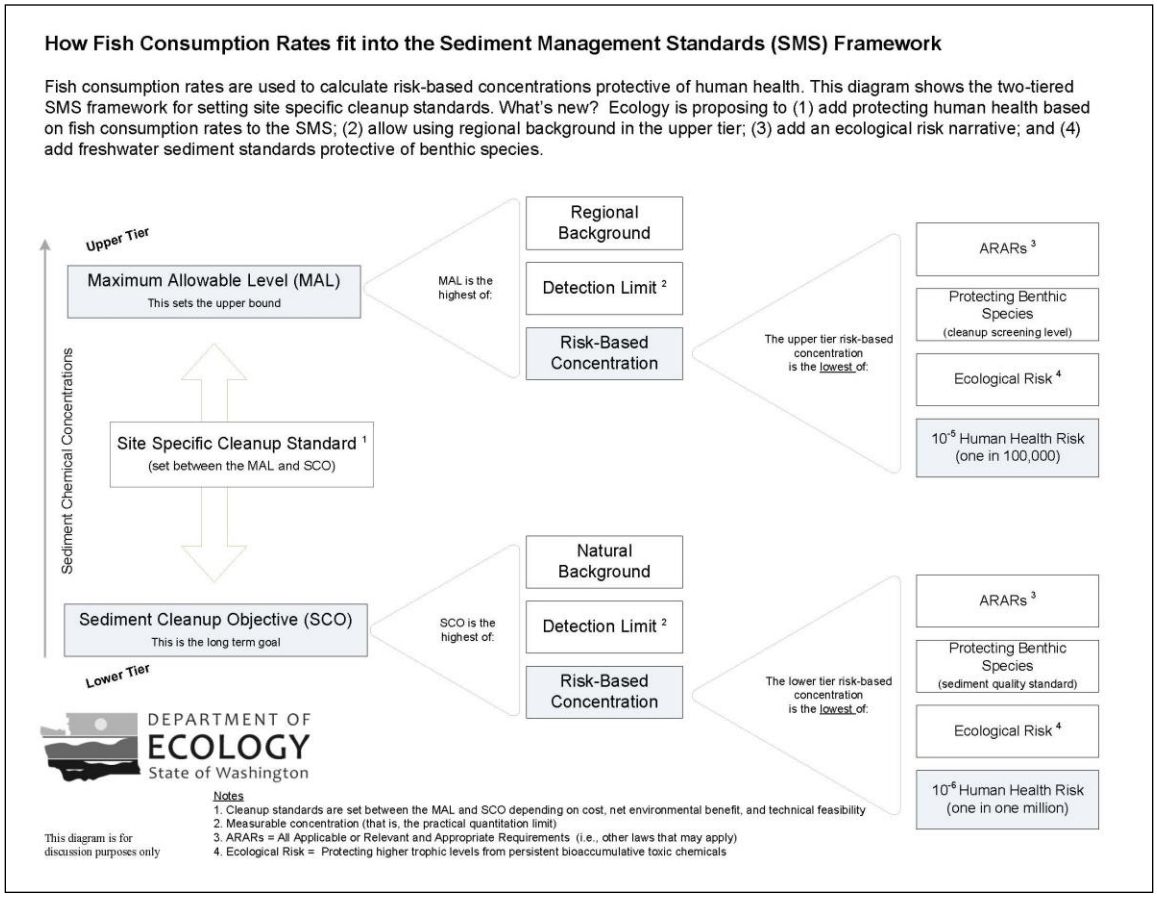
Rulemaking is governed by the state Administrative Procedures Act (Chapter 34.05 RCW). Each rulemaking goes through the following process:

- Agency announces rulemaking
- Work with interested parties
- Agency proposes draft rule language
- Economic analysis, public comments
- Agency adjusts proposal based on feedback
- Agency adopts rule

Tribes, businesses, local governments, the shellfish industry, recreational fishing industry, tourist industry and citizens groups all have a stake in fish consumption rates. Decisions on fish consumption rates will take into account multiple factors, including economics, science, policy, and public concerns. Risk management decisions are based on many factors.

Fish Consumption Rates – Craig McCormack, Department of Ecology

The relationship between fish consumption rates and Sediment Management Standards is one of the policy pieces in rulemaking. The two-tier framework of Maximum Allowable Level (MAL) and Sediment Cleanup Objective (SCO), seen below, address how sediment cleanup standards are developed.



Issues and Fish Consumption Rate Update

Craig McCormack explained Ecology's risk based concentration model, which Ecology believes it will include in guidance, not the actual rule. This is the subject of discussion and rigorous debate. He explained that as fish consumption rates go up, allowable concentrations go down. At some point in the process, risk-based concentrations are low enough to defer to natural or regional background concentrations.

Craig said the technical support document was used to provide a discussion platform. Ecology staff worked collaboratively with natural resources staff from several tribes, scientists at the Washington Department of Health, the Environmental Protection Agency (EPA), the Oregon Department of Environmental Quality, the University of Washington School of Public Health, and the Office of Finance and Management. The document underwent extensive internal peer review, and focus questions were developed and presented to the collaborating partners. Public comments were accepted between September 2011 and January 2012, which included significant technical and scientific review.

The report reviews information relevant to Washington, using both tribal-based data as well as information from the EPA. Some of the information is being re-evaluated in collaboration with EPA Region 10 and biostatisticians.

A number of issues were raised by public comments, including:

- A single fish consumption rate or multiple rates
- Reasonable Maximum Exposure (RME)
- Defining the population of concern
- What data to use and how to treat the data
- Using consumer only or per capita data
- Percentiles to base a range on
- How to account for salmonids
- Whether to only include locally harvested fish and shellfish

Craig reviewed each issue, including the current thinking and rationale.

A single rate or multiple rates
Current Thinking: A single default fish consumption rate will be included in the Sediment Management Standards plus flexibility so that site-specific cleanup decisions can account for regional differences.

- Rationale
    - Default provides consistency, and predictability for sediment cleanup.
    - A single default fish consumption rate will be based on regional specific fish dietary information.
    - Flexible variations across the state.
    - Approach maintains regulatory flexibility.

Reasonable Maximum Exposure
Current Thinking: Base Sediment Management Standards cleanup standards on the MTCA definition of an RME which is defined by Tribal exposure.

- Rationale
    - Tribal exposure scenarios are protective of the most exposed – those who consume fish/shellfish from Washington waters as large portions of their diet.
    - Regional specific fish dietary information of Tribal populations documents consumption of large amounts of seafood.
    - Most of the seafood consumed by tribal populations comes from Washington State waters.
    - Tribal RME scenarios are consistent with federal regulatory policies and procedures.
    - Sediment risk-based cleanup concentrations health protective of high fish consuming populations are likely to be protective of recreational anglers and general population fish consumers.

Population to Protect
Current Thinking: Choice of a default fish consumption rate for use in Sediment Management Standards should be health protective of Washington fish consumers.

- Rationale
    - Approach is consistent with current MTCA regulatory policies/procedures.
    - Sediment risk-based cleanup concentrations are designed to be protective of those who consume seafood.

- Default must be at least as protective as federal requirements (Superfund and EPA Region 10) that acknowledge tribal exposure scenarios in establishing an RME when based on fish consumption.

Many people want clarity and a better explanation of tribal survey data, and regulation-based data applied to the general population. There is a data gap on general population consumption, and there are important questions embedded in this. Regulations are developed to be protective of high-consuming populations. It is very important to also evaluate national data and to do it in a sound, mathematical way.

Fish Dietary Data to Use

Current Thinking: Continue to use regional specific fish dietary information; however, focus on Tribal data.

- Rationale
  - Ecology reviewed available fish dietary information for the general U.S. population, Pacific NW fish consuming population groups, and recreational anglers.
  - National fish dietary information provides supporting information.
  - Differences and limitations in dietary survey design, methodology, and execution need to be addressed.
  - Consultation with regional, national, and academic experts continues.

King County will provide additional information on recreational anglers and national fish dietary data will be used as support. Differences in survey design will need to be addressed.

Percentile

Current Thinking: Default rate used to estimate RME should be between the 80^{th} and 95^{th} percentiles of the seafood dietary exposure distribution

- Rationale
  - State and federal exposure assessment methodologies consider central tendency and upper bound estimates in RME parameters.
  - Approach accounts for variability and uncertainty in estimating seafood consumption.
  - Approach supports risk-based sediment cleanup concentrations that are a product of a combination of central and upper bound estimates.

Salmon

Current Thinking: Salmon should be included in the default fish consumption rate; however sediment cleanup decisions need added flexibility.

- Rationale
  - Data show that salmon are consumed more than any other finfish.
  - Salmon have cultural and economic importance for the Pacific Northwest.
  - Resident Puget Sound salmon are locally harvested and consumed.
  - Salmon contaminant body burden is assumed not just from open marine waters but also associated with contaminated rivers of origin, urban estuarine environments, and Puget Sound urbanized embayments .
  - Ecology is considering how to account for the residency time of salmon in a

contaminated sediment area.
- Consideration of a Site Use Factor

Ecology received polar opposite comments regarding salmon. The consideration of a site use factor is a major part of this particular issue.

Source of Fish
Current Thinking: All sources of seafood should (probably) be considered to establish a default fish consumption rate estimate.

- Rationale
  - The regional specific dietary surveys are based primarily on locally harvested and consumed seafood.
  - Members of fish consuming populations, by tradition and practice, consume large amounts of locally harvested seafood.
  - When local seafood resources are available they will be preferred.
  - Ecology thinking is evolving, and Ecology is evaluating the information to respond to comments regarding locally harvested versus non-locally harvested seafood. This is work in progress with results from the analysis expected to be released in mid-May.

Ecology is interested in seeing the influence of statistical outliers, developing a method for deriving a fish consumption rate range, and analyzing national general population data in the context of EPA Region 10 framework. Ecology will also be looking at new information published on Japanese and Korean populations, and rates applied to water bodies.

Martha and Craig reminded participants about additional participation opportunities, and asked for any additional input by May 25. All comments are valid as work continues on rulemaking. If comments have already been submitted, there is not a need to submit them again. There will be opportunities for further feedback. There is a big effort to involve as many people as possible, and more information will be posted on the website: http://www.ecy.wa.gov/toxics/fish.html

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Q&A – All participants
Fish Consumption Technology Workshop
May 7, 2012 | Ellensburg, WA

Question: What is the projected timeline? Will the technical document feed into Sediment Management Standards?

> Answer: The fish consumption technical support document is a start, and Ecology is in the process of updating it, but that is only part of the picture. Ecology's goal is overall toxics reduction strategy and a lot of regional efforts need to come together to control contaminant sources.

Question: Is Ecology considering the Sediment Management Standards to be equivalent of water quality implementation tools?

Answer: No, they are different. Sediment Management Standards is specifically addressing cleanup issues, and fish consumption rates will be part of the rule. At the beginning, we thought a single rate was appropriate for both, but it has become clear that it is more complicated than that. Water quality implementation tools will be developed separately.

Question: If Sediment Management Standards is not an implementation tool, but human health standards are driven by fish consumption rates, then do we have implementation tools for dealing with contaminated sediments outside the context of Sediment Management Standards?

Answer: There are tools currently available in the Sediment Management Standards rule. They have not been used – and we are not looking to expand them at this time, but it may be appropriate to consider how they can be used.

Question: You mentioned Ecology will develop a policy issues document. What is that?

Answer: There are many questions to be addressed that aren't technical issues, but they help flesh out why Ecology makes some of its risk management decisions. The document will explain these policy issues raised within the context of rulemaking.

Question: How would you come up with regional background?

Answer: This is a developing concept to deal with setting cleanup standards in an environment with background concentrations of contaminants. Stakeholders have told us that regional background is something that Ecology should develop, and we are asking for funding to do this. People are more comfortable with Ecology doing it than Potentially Liable Parties (PLPs). It involves developing an appropriate sampling design and methods, a lot of sampling, including sampling uncontrolled sources. Doing sampling in freshwater is more complicated. There will be times when regional background is not a useful concept.

Question: For fish consumption rates, in Sediment Management Standards are you going to set different criteria for the eastern and western part of the state?

Answer: We have been talking about a statewide default fish consumption rate, but also maintaining site-specific flexibility. There will be the ability to take into account site-specific considerations.

Question: Are you looking at background level samples with core samples? Or will it all be surface samples?

Answer: Since we are trying to assess the current situation, surface samples tell us what we need.

Question: Can you explain suppression effects?

Answer: There is concern from tribes that harvesting and consuming of fish is limited based on variety of concerns focused on contamination. Current Tribal surveys reflect what is currently

available, not when treaties were signed. Fish advisories are for the public's sake, and some level of fish/shellfish consumption is likely suppressed based on concerns about contaminants.

Comment: For example, when coldwater fish become less available, a hatchery was created. Many landlocked species concentrate contaminants and can be far more toxic than salmon. There is a reduction in health benefits from suppressing a fish diet.

Question: The calculations shown in the presentation are a little different than the technical document. Is this equation currently used?

Answer: The MTCA-based equation in the technical document shows the general framework. The equation here is specific to sediments. Guidance is being developed. On a site-specific basis, we'll think about life cycle, survival strategy, and migration. We are navigating through a series of comments and trying to respond to provide appropriate level of flexibility.

Question: What contaminants were considered?

Answer: Ecology consolidated national and regional information on chemicals of concerns including PAHs, dioxins, PCBs, and mercury. The World Health Organization has developed a matrix to help evaluate the benefits and risks from consuming contaminated fish.

Question: I'm concerned that using 80-95th percentiles is a kind of worst case scenario. Will you be including a larger population going forward?

Answer: Populations will be based on tribal data and will probably use those percentiles. Information from national data reveals that fish consumption rates are not an exaggeration. People do eat 160-200 or 300 grams per day.

Comment: But you are looking at only the top 10% and going to highest levels of that group when compared to entire population of the state.

Answer: We are protecting the populations that are fish consumers. There is a need to analyze national data sets and we are focused on that. We are aware of the concerns of looking at a population subset. We will continue to use regional-specific fish dietary information, tribal data sets. Comments have noted concerns over data quality, but we have conferred with tribal governments on technical defensibility of tribal fish dietary surveys. We do use high end percentiles, but we need to look at combinations and exposure parameters.

Question: It sounds like you are looking mostly at site-specific and fish-specific factors, is that correct?

Answer: Yes, we want to continue to provide site-specific flexibility in decision-making.

Question: How did you come up with salmon residency within freshwater and marine environments?

Answer: We evaluated salmon lifecycles, including residency time within a site. We have conferred with the Washington Department of Fish and Wildlife on the importance of

considering residency time in the Puget Sound and whether that would increase contaminant body burden. However, this is complicated by the considerable amount of information associated with salmon assuming part of their body burden from the river of origin. Also, salmon can recycle their body burden in freshwater environments. Some salmon are distinguishable, and some spend a shorter time in the Puget Sound. One thing Ecology is doing is re-evaluating salmon life cycle and survival strategies within the context of site-specific cleanup decisions.

Question: Will policy decisions be out for public review?

Answer: Yes, a policy document will be published along with the draft rule and be put on our website. It will be part of the entire package, and we will consider comments.

Question: The source of fish slide supports salmon. A lot of tribes would see salmon as local seafood.

Answer: Salmon will be included in the default fish consumption rate.

Question: Will you include an adjustment factor for contaminants picked up outside of Washington state water?

Answer: Some c~~o~~ntaminants are global, so it will be difficult to distinguish global contaminants that are part of site-specific contaminants. The current thinking is to include salmon. It is very hard to not include salmon because it is the most frequently consumed and consumed in the largest amounts of all the finfish based on regional specific fish dietary information ~~here~~. How to account for the fact that a portion of contaminants come from outside Washington is very important.

Comment: You also need to consider river of origin.

Answer: Yes, this is why we are doing site-specific analysis. The fish consumption technical support document was risk neutral and did not review the health benefits and risks from consuming contaminated fish.

Comment: Thank you, you are taking a practical approach and this is appreciated by the Tribes. My son was born yesterday, and I am happy to be here and be able to look him in the eye and say that we are doing all we can to address this issue.

Response: One of the long term goals is to sustain resources for future generations.

Question: Is there any thought on point source discharge regulations?

Answer: In the separate but coordinated processes for implementation tools rulemaking, we are looking at point source disclosures. There is ongoing, vigorous dialogue. Many believe implementation tools need to be addressed before compliance. In order to reach our long term objective, it is possible we will take several generations to get there.

Comment: Regulatory predictability is very important from a business perspective.

Answer: We are talking about things that need to happen at national level and there is dialogue at the international level. To get regulatory predictability, we would need to have a coordinated regulatory effort for all of these pieces. Can we have regulatory tools in place to allow us to continue down an important path – that's where we are. There is ongoing discussion about tools needed to meet these long term goals, and this is a huge issue for the shellfish industry in Washington.

Question: From an economic perspective, how do you plan to go about implementing cleanups?

Answer: We are working hard to provide a level of flexibility within the fish consumption range. Sediment Management Standards has some flexible tools that water quality does not have. We are trying to provide a framework to move in the direction to allow cleanups to happen. Every perspective is a legitimate concern. We will do cleanup thoughtfully and carefully.

Question: Is there a timeframe on the technical support document update?

Answer: By mid-July, 2012.

Q&A – All participants
Fish Consumption Technology Workshop
May 8, 2012 | Tacoma, WA

Question: Will there be response to comments for the fish consumption technical support document?

Answer: Yes, this will be part of the public review package to be released in July.

Question: Regarding economic impact analysis, does the economic analysis include impacts if the rules were not changed?

Answer: This would be the baseline.

Question: Will there be an opportunity to comment on the economic analysis prior to the release of the rule?

Answer: Under the Administrative Procedures Act (APA), we release the cost-benefits analysis at the start of the public input process. There is not a formal process ahead of this, although many people have already commented on the fish consumption technical support document and potential economic implications when changing the fish consumption rates.

Question: What will be the length of the rulemaking comment period?

Answer: The comment period will be 60 days.

Question: Although Sediment Management Standards and water quality standards are separate, will the fish consumptions rates be the same?

Answer: Yes and no. The totality of the information is the same. We have discovered there are different perspectives, but the entire process will follow the rulemaking for Sediment Management Standards, which is a reasonable starting point. Additional data received by the time Water Quality Standards are addressed could result in differing fish consumption rates.

Question: Could you clarify as to when comments made on the proposed rule could be significant enough to warrant a re-release of the rule language?

Answer: We have been working on Sediment Management Standards with stakeholders for many months, and the fish consumption rate is a part of these standards. We do not anticipate the need to re-release the rulemaking package for additional comment after Ecology has completed the rulemaking process this summer.

Question: Is the cost-benefit analysis only related to Sediment Management Standards and not additional issues?

Answer: At this point, yes.

Question: Will the final report be the same as the current technical support document?

Answer: Yes. Format and fish dietary survey information will be the same but statistical reanalysis may result in some changes. Water Quality Standards will be addressed later in the process. The report will provide useful information throughout the regulatory processes.

Question: I appreciate you looking at fish consumption rates for Water Quality Standards through different lenses. Is there any confusion that comes from the EPA looking at Water Quality Standards and Sediment Management Standards through the same lenses?

Answer: Authorities vary. We are working closely with the EPA right now looking at cleanup issues. We will submit appropriate sections for their review and approval. The Sediment Management Standards sections are not approved at this time.

Question: Will the fish consumption rates be locked in after Sediment Management Standards? At the end of Sediment Management Standards rulemaking, will submissions to the EPA include fish consumption rate numbers and criteria for human health?

Answer: We are currently looking at sediment management cleanup standards, although there may be some interplay between sediment and water quality standards rulemaking. Not all sections of the sediment management standards require EPA approval because not all sections are standards.

Question: How and where does fish consumption rate fit into Sediment Management Standards?

Answer: These affect the benthic subgroup of species, which are creatures that live in the mud on ocean floors, and human consumption of fish and shellfish.

Question: What if regulatory background levels are higher than risk-based concentrations?

Answer: The maximum allowable level would become the regulatory cleanup standard. The lower level long-term objective is based on other criteria, which are further explained in the handout.

Question: What is a site use factor?

Answer: The site use factor is an evolving concept. It is associated with a residence time of anadromous fish at a site. When evaluating site-specific species, the site use factor accounts for some of the residency timeline differences.

Question: Regarding shellfish fish consumption rate, is the rate based on the shellfish when shucked or in the shell? Will you be addressing uncertainties in biota factor?

Answer: The rate for shellfish is based on the shellfish when shucked.

Question: In the current MTCA there is a default fish consumption rate. What are the regulatory merits of abandoning that and putting this default number in Sediment Management Standards?

Answer: There are both technological and risk policy issues. On a site-specific basis, Ecology had to re-evaluate the fish consumption rate. As we continued through the process, we realized that 54 grams a day, which was the standard developed in 1980, was not adequate for cleanup purposes. Recognition of treaty reserved or tribal rights must be recognized by state and federal governments, it is not discretionary.

Question: For whom does this situation provide flexibility?

Answer: Guidance would provide a greater level of flexibility. This creates flexibility for the regulatory community as well as for Ecology.

Question: What parameters for input could change at a site?

Answer: A couple of the parameters that might change are the fish consumption rate; the rate would not be representative of populations at that site. Also, the fish diet fraction associated with the fish harvested and consumed from the site-which might change on a site-specific basis. Additionally, tribal scenarios could look at body weight differently than the default.

Question: Are you currently re-evaluating the Asian/Pacific Islander data?

Answer: Yes. We want to address issues with the data set. The study used in the fish consumption technical support was focused on one county. The demographics of the area need to be considered in order to understand the data set mathematically. Additionally, the published data regarding Korean and Japanese dietary patterns and additional information from King County will need to be considered in the final technical support document.

Question: Do you have any other examples of where the risk based concentrations formula is used in MTCA? It seems like a departure.

> Answer: MTCA is very deterministic. This is a departure from standard MTCA formats, but the parameters and framework are based on evolving science associated with sediment risk based cleanups.

Question: In MTCA, the equations use default exposure parameter values. The values are then changed based on the exception of parameters on a site-specific basis. Can this be done in Sediment Management Standards?

> Answer: That is one of the major arguments being made at this time and there is merit for this argument. This would remove the site-specific debate.

Question: When you have a lot of flexibility, everyone goes toward the lowest common denominator. How will you ensure the lowest number is not the one that's always used?

> Answer: Risk is assessed on a site-specific basis. We still will address the concerns of fish consumption populations at each site. A high level of collaboration between Ecology and the public or fish consumers affected by site-specific decisions will help in this situation.

Question: How would this work out in a multiple-sites area like the Lower Duwamish or Elliott Bay?

> Answer: The Lower Duwamish is a good example of an area with multiple sites. The Muckleshoot Tribe has treaty-reserved rights at the Lower Duwamish. The Lower Duwamish have several different fish consuming populations sand the cleanup levels developed were consistent with those fish consuming populations. I would predict that scenario would play out similarly in Sediment Management Standards.

Question: Is the proposal for multiple rates assuming the Lower Duwamish would be one rate?

> Answer: One size does not fit all. We are looking at east, west, fresh and marine rates and dissecting dietary information to develop supportable rates. We are also looking at a breakdown similar to the way that EPA breaks down rates into pelagic, anadromous, and bottom-dwelling shellfish.

Question: A lot of Tribal consumption data dates are from 2000 or earlier; are there any more recent data?

> Answer: The Colville Tribe has developed and is in the process of publishing tribal dietary information. On a site-specific basis, that information will be considered and incorporated as we update our rules. A representative from the tribe said that they are still working through the data and will supplement it with a longer-term project on the Columbia River.

Question: Will the data be revised to include Asians/Pacific Islanders?

Answer: There is recent published information on Japanese/Korean diets. This information will be included in the technical support document.

Question: Using the 95th percentile and a 10 to -5 (1 in 100,000) human health factor, how do these buffers come into play when you based fish consumption rate on the highest possible percentile?

Answer: Fish consumption rate is just one of the exposure parameters. We work with a range of exposure parameters, using Monte Carlo analysis to evaluate where each exposure parameter has influence. This analysis helps to evaluate the exposure parameters and which will have the most influence one cleanup decisions.

Question: The fish consumption rate protects the highest consuming population. Could it legally be otherwise?

Answer: We have received a lot of comments about what population is being protected; we intend to protect high fish consuming populations.

Question: Sediment Management Standards has flexible routes that aren't available in Water Quality Standards, as well as the site use factor. How do you deal with this difference?

Answer: We have flexibility to include anadromous fish within the default. With water quality, those issues will be addressed in the future.

Question: Will we be regulating to the same risk levels? Will this end point change?

Answer: Risks within MTCA will not be changing. MTCA target risks in Sediment Management Standards would still apply.

Question: How big is a regional area compared to site-specific?

Answer: Although this is contingent upon the characteristics of the site, this is best resolved when confronted within a site-specific cleanup effort.

Question: Why is the default rate between 80th and 95th percentile?

Answer: Many factors go into that determination, including science, policy and economics. We will propose a range to Ecology management along with our technical recommendation.

Question: When talking about RME and consumption rates, are you looking at children, adults or other groups?

Answer: One survey defined adults as those 16 and over, but the general definition of an adult is 18 and over. We are focusing on an adult fish consumption rate recommended for adults which recognize children because they consume less than an adult.

Question: Do we have data on children? Will the technology support document show exposure to children? How do we ensure their safety?

> Answer: We are trying to get better documentation on the risks associated with RME for children. There is data within the survey that focuses on children's consumption. An adult's consumption would clearly be higher than a child, but this would also be contingent upon the site.

Question: Are there studies based on cancers related to child-based exposure?

> Answer: Some carcinogens have an early-life exposure component, which means that a fetus or child may be exposed to certain types of carcinogens but may express the carcinogenic effects later in life. Ecology has consulted with EPA and Dr. Elaine Faustman (an environmental and developmental toxicologist at the University of Washington) regarding updates to MTCA to recognize this early-life exposure component to carcinogens.

Question: Would the site use factor apply to new rates?

> Answer: The Sediment Management Standards cleanup equation includes in the denominator a site use factor that would apply against fish consumption rates and site-specific rates. Current dietary information related to Tribal consumption is probably suppressed and Ecology may have to consider factors associated with suppression as well. This is a still evolving and ongoing dialog. It could be addressed in guidance.

Question: Site use factors would address the issue of salmon, but would this affect water quality?

> Answer: Site use factors are part of the Sediment Management Standards rulemaking at this point.

Question: Are you calibrating site use factors?

> Answer: This is still evolving.

Question: Will water quality standards handle salmon data differently than Sediment Management Standards? If so, will the technical support document separate that data out from the others?

> Answer: We will separate out pelagic, anadromous and others much like the EPA framework.

Comment: In the Puget Sound, it seems like parsing it out where fish were exposed would be far too complicated.

> Answer: The information available from other studies conducted in the environmental assessment program clearly notes that residency time contributes significantly to body burden. Species migrate differently, which emphasizes the need for site-specific data.

Q&A – All participants
Fish Consumption Technical Workshop and Webinar
May 15, 2012 | Spokane, WA

Question: Is there an accurate current consumption rate?

> Answer: We have information about fish consuming populations in the Pacific Northwest based on regional specific dietary surveys; there is more information about fish consuming populations in the Pacific Northwest than anywhere else in the country.

Question: Is there any effort being made on understanding the economic impact of the fish consumption rate selected? Will there be an economic study that's considered?

> Answer: There will be a cost-benefit analysis. Preliminary economic analysis information will be available with the proposal in July that will go out for public comment.

Question: Will the cost-benefit analysis take into account *not* protecting human health? The baseline clearly doesn't protect human health.

> Answer: With the economic analysis, we have a baseline of what is currently in regulation, what is required and what is not. The baseline currently under Sediment Management Standards doesn't give a good indication of how to protect public health. We are going to do a comparison with baseline, then a more protective approach.

Question: Why is the Sediment Management Standards rule timeline so fast? Why are we doing this so quickly?

> Answer: Work on the Sediment Management Standards rulemaking has been underway for several years. The fish consumption piece is one small component, but it is an important one. Work overall has not just started. The timeline shown in the slide shows the current and future parts of the process.

Question: We talked about the interim process and all the different things to make that decision. I don't see anything that allows you to determine baseline consumption. How could a default fish consumption rate be changed on a site specific basis?

> Answer: We are evaluating regional specific fish consumption information that is technically defensible. What we choose to put in rule may not be the same as what is a technically defensible rate based on a site-specific evaluation.

Question: What is the EPA's role under the Clean Water Act to review and approve the Sediment Management Standards?

> Answer: Sediment Management Standards must comply with the Clean Water Act and MTCA. After we have adopted Sediment Management Standards, the Sediment Management Standards will be submitted to the EPA for review and approval. EPA does not need to approve

all parts of the Sediment Management Standards proposed in rule. The EPA's schedule is unknown at this point

Question: Will EPA have to approve a fish consumption rate as part of the Sediment Management Standards "formal rule process"?

Answer: As above, but that is outside of Ecology's rulemaking process.

Question: In regard to the earlier slide about effects on human health, it said the end goal is protection of health, but we have no idea what is going on with human health. Why aren't we starting with human health and moving backwards?

Answer: We need to be preventive. We want to knock down the concentrations, make progress now, and not neglect the fact that we need to be engaged in prevention.

Question: How is the risk equation different from the fish diet fraction?

Answer: The new component in the equation is the site use factor. We are trying to work this into the Sediment Management Standards protective of human health to adjust site-specific fish consumption rates to account for anadromous fish, and take into account fish residency terms. The fish diet fraction is an exposure parameter associated with the amount of fish/shellfish harvested and consumed from the site. The fish consumption rate in the denominator is a component we use currently.

Question: With the site use factor, if the site is not being used by fish, or used in lesser amount because of contamination, how is that folded in?

Answer: The site use factor is a response to comments on salmon being transient within a site. Thoughts on site use factor are still evolving, but we are trying to model this for sites being assumed in the economic analysis. It might be determined based on a site-specific evaluation, not as an exposure parameter that will be used routinely.

Question: Is exposure duration related to fish species residency duration, or the duration over which people will consume fish? Have you done studies on people who eat fish three times a day?

Answer: The exposure duration is not associated with the fish species. In this case, it may be expressed in terms of Sediment Management Standards, or exposure duration associated with particular use at the site. Fish dietary surveys are not based on a specific water body or duration; they are calculated based on how much people eat.

Question: Regarding the framework for Sediment Management Standards, can you expand on the difference between regional and natural background? Is regional background the method used to incorporate contaminants that might be watershed-wide, whereas natural background might be something with no anthropogenic influence?

Answer: Natural background under MTCA includes natural/globally distributed anthropogenic

chemicals, but the Clean Water Act has a different definition of natural background. Regional background takes into account cleanup in areas where there are many different sources. MTCA has the flexibility to account for globally anthropogenic conditions.

Question: PCB concentrations have dropped substantially. In the risk equation, do we have a way of factoring that in? Does it take into account degradation of PCBs over time?

Answer: One way to account for reduction of PCBs is to evaluate fish tissue concentrations over time. It would probably be done on a site-specific basis.

Question: Is a regional tribal fish consumption rate considered an Applicable or Relevant and Appropriate Requirement (ARAR)?

Answer: Depending on the location, maybe, if it is in an area where there are tribal standards.

Question: If risk based concentrations were actually below detection limits, how would that be dealt with?

Answer: In terms of Sediment Management Standards, we have flexibility when risk based concentrations are lower than quantitation limits or background concentrations to set cleanup standards at background or the practical quantitation limit, whichever is higher. The Water Quality Program is investigating improved compliance tools now to try and get at some of these issues.

Question: Please define 160 and 300 grams in terms of ounces. The website uses both ounces and grams.

Answer: Grams per day is common metric used to develop risk based concentration. An 8-ounce meal is the standard dietary quantity people eat. One fish meal five times per week translates to a little over 160 grams per day.

Question: Is using the high end percentile of consumers to establish the rate a regulatory guideline, or policy decision?

Answer: The percentiles selected are within range of 90-95th. The EPA recommends priority be given to protecting the most highly exposed population and recommends the adoption of health protective criteria that recognizes the most highly exposed.

Question: I visited a nutritionist recently, and they do not recommend eight ounces of protein, so eight ounces of fish per day seems kind of high.

Answer: Nationally, the trend is moving away from beef or poultry to consuming more fish. The fish consumption rates currently used are substantially below the fish dietary recommendations from the American Heart Association.

Question: Using the Puget Sound as incubator for salmon consumption, how many non-migratory

species of salmon reside in the Puget Sound? Are there native species of salmon that do not migrate to sea?

Answer: Blackmouth Chinook reside within the Puget Sound and do not migrate, also, ~~and~~ Kokanee reside within confined waters and do not migrate.

Question: If I wanted to check out the Colville Tribal survey data, who could I contact to share information on the dietary survey?

Answer: Patty Bailey from the Colville Tribe, in attendance.

Question: The Kalispell Tribe in Spokane establishes its own water quality standards, why wouldn't Ecology go the same route?

Answer: We must take into account the technical quality of how fish dietary surveys are conducted. Tribal water quality standards may be based on tribal information that is antidotal or based on survey methodologies that are not suitable for projecting long term dietary estimates. With MTCA, an important guiding principle is to facilitate cleanups as efficiently as possible. We want to focus on a default rate to establish cleanup standards.

Question: Why are you asking east-side business communities to adopt standards based on the Puget Sound?

Answer: Economics will be carefully evaluated as we proceed. The cost-benefit analysis has not yet complete. Based on considerable personal experience, and on a site by site basis and evaluation, we think this can be a workable approach statewide.

Question: Have the current Sediment Management Standards worked?

Answer: We have several examples where we have developed site-specific fish consumption rates based on populations (Port Angeles). It took three science advisory board meetings, and meetings with the EPA to develop a consistent rate. Transactional costs are high for that.

Question: What is meant by adequately protecting the most highly exposed population? Does that require 10-6, or is adequate protection perhaps 10-5 or 10-4? EPA guidance says 10-4 is protective of highly exposed populations.

Answer: The risk framework leads to a conflict between MTCA goals and the Clean Water Act regulatory framework. Disagreements abound, specifically regarding environmental justice related issues. These are relevant conversations that will be on the table. Right now, for Sediment Management Standards, Ecology is looking at 1 in a million risk level.

Question: Did the tribal data used in the technical support document go through external peer review? Did you request data from the Northwest Indian Fisheries Commission?

Answer: Tribes do not release raw data due to privacy issues and tribal sovereignty, and many

respondents have confidentiality agreements consistent with federal guidance governing human subjects. Access to that data is unlikely. We asked a professor from the University of Washington to provide input on dietary surveys informing fish consumption rates, but confidentiality is still an issue.

Question: Are we at risk of creating a human health crisis with the adoption of these rates and standards associated with them? Do we all believe eating a diet high in seafood is better than a diet high in meat consumption?

Answer: In development of the document, we consulted Taylor Shellfish, a company that cultivates and harvests shellfish. I learned from them that we need to be very careful in our messaging. There is a nexus occurring with global changes and sediments and companies are very interested in sustaining their resource.

Question: Can you define the term raw data? What is difference between raw data and that being used to inform fish consumption rates? What is the percentage of Tribal members taking the dietary surveys?

Answer: The Columbia River Intertribal Fish Commission publishes a report which summarizes data and provides a statistical description of data projected in grams per day. It provides mean, median, and percentiles. Raw data is the information obtained individually.

Question: Doesn't the quality and verifiability of survey data from any source go to the issue of "weight of evidence"? Is more reliable and transparent data given more weight? Is this process then made public?

Answer: Recreational and national data is to be used to support and as a weight of evidence to help evaluate regional specific fish dietary information. If you look at upper percentiles associated with many of the tribal fish dietary patterns, the rates are not dissimilar to national data. EPA clearly noted in their disapproval of Idaho's proposed fish consumption rate to recognize regional specific fish dietary information.

Question: The EPA has not banned PCBs, just production of them. If PCBs are still available, is it something the state could ban?

Answer: Source control is a major issue. One issue for us is persistent bioaccumulative contaminants recycled through the environment by fish. The body burden for resident Blackmouth Chinook salmon is really high. The goal is to reduce contaminants over time, which will take cooperation at the federal and state level. Source control is enormously complicated but critically important to achieve our environmental goals.

Comment: I can tell you from a tribal perspective, without a survey, that in May, one of the main food sources is eel. Tribes did not consume elk or other mammals because they are having babies. May is for river food usually. Also, within the reservation is not the only place where tribes fish. All waters impact tribal members. Why would we not want our children to be safe when they eat these fish?

Question: What is the EPA subsistence standard?

Answer: 142 grams per day based on per capita rates.

Question: Who will implement the new Sediment Management Standards regulations?

Answer: Ecology will implement them.

Question: If and when there are changes to Sediment Management Standards, how are those changes administered? Do you touch paths with the Water Resource Inventory Areas (WRIA) in sediment cleanup?

Answer: Ecology is organized through regional offices, and works site by site through the regional offices. When we have complex cleanup issues, everyone who has a stake is at the table. WRIAs are often involved.

Question: Is the State of Washington under federal enforcement to develop fish consumption rates by the end of 2012?

Answer: No. We want to finish the process and we are making an enormous effort to get public input.

Martha reminded participants to contact Becca Conklin at swqs@ecy.wa.gov for Water Quality questions. Further comments about fish consumption rates may be sent to fishconsumption@ecy.wa.gov.